

Application No. 10/653,032
Filing Date 08-28-2003

Amendments to the Claims

The following listing of claims replaces all prior versions, and listings, of claims in this application.

Listing of Claims

1 - 11 (Canceled)

12. (Currently amended) A method for treating a liquid sample stream, including at least one analyte species ion and matrix ion species of opposite charge to said one analyte ion species, and for detecting said at least one analyte in the liquid sample stream, said method comprising flowing said sample stream from an inlet in a flow-through treatment channel to [an] a sample stream outlet thereof, flowing a carrier liquid stream including a matrix ion species capture material through said flow-through channel to a carrier stream outlet thereof for removing said matrix ion species away from said at least one analyte ion species, said sample stream and carrier liquid stream flowing substantially parallel to each other in said treatment channel and forming a liquid interface between them, said matrix ion species in said sample stream diffusing through said interface to contact and become bound by said capture material in said carrier liquid by forming a salt or complex or by ion exchange so that the concentration of said matrix ion species at said outlet is at a substantially lower concentration than at said inlet, transporting the sample stream, but not the carrier stream, from said sample stream outlet, in a fluid conduit to a detector, and detecting said one analyte ion species in said sample stream by said detector, ~~and separating said sample stream and carrier liquid stream exiting from said treatment channel prior to said detecting.~~

13. (Original) The method of Claim 12 in which no substantial amount of said capture material in said carrier liquid stream flows into said sample stream in said treatment channel.

14 - 15 (Canceled)

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16. (Previously presented) The method of Claim 12 in which said sample stream comprises at least a second analyte ion species, said method further comprising separating said one and second analyte ion species in said sample stream prior to flowing said sample stream to the treatment channel inlet.

17. (Canceled)

18. (Previously presented) The method of Claim 12 in which said liquid sample stream is aqueous, said ion exchange material is in liquid form, and said carrier liquid stream is an organic liquid solvent for said ion exchange material.

19. (Previously presented) The method of Claim 12 in which said ion exchange material comprises solid ion exchange particles suspended in said carrier liquid stream.

20. (Original) The method of Claim 12 in which said carrier liquid stream is substantially immiscible in said aqueous liquid stream.

21. (Original) The method of Claim 12 in which said carrier liquid stream is substantially miscible in said aqueous liquid stream.

22. (Original) The method of Claim 16 in which said matrix ion species is suppressed on exiting said treatment channel.

23 - 24 (Canceled)

25. (Previously presented) A method for treating a liquid sample stream including at least one analyte species ion and matrix ion species of opposite charge to said one analyte ion species, said method comprising flowing said sample stream from an inlet in a flow-through treatment channel to an outlet thereof, and flowing a carrier liquid stream including a matrix ion species capture material through said flow-through channel for removing said matrix ion species

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away from said at least one analyte ion species, said sample stream and carrier liquid stream flowing substantially parallel to each other in said treatment channel and forming a liquid interface between them, said matrix ion species in said sample stream diffusing through said interface to contact and become bound by said capture material in said carrier liquid so that the concentration of said matrix ion species at said outlet is at a substantially lower concentration than at said inlet, in which said capture material binds said matrix ion species by forming a salt or complex.

26. (Original) The method of Claim 12 in which said sample stream and carrier liquid stream flow under substantially laminar flow conditions.

27. (Canceled)

28. (Original) The method of Claim 12 performed in the absence of an applied electric current.